

## **Appendix D**

### **“PUBLIC INVESTMENT PLANNING IN THE UNITED STATES: ANALYSIS AND CRITIQUE”**

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# PUBLIC INVESTMENT PLANNING IN THE UNITED STATES: Analysis and Critique

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During the New Deal period the United States Government adopted two important techniques--multiple-purpose planning and benefit-cost analysis--for evaluating public investments in natural resources, and the years since then have been devoted to perfecting and applying them. Accomplishments have been substantial, especially in the development of water resources. Thus when in 1963 Robert Dorfman organized the Brookings Institution's first conference on measuring benefits of government investment, he excluded papers on water resources, because the great need was to bring analysis in other areas of public investment up to the level already achieved in the design of water resource systems.<sup>1</sup> At the same time, these techniques, in the process of development, have come to serve ends somewhat different from those that were intended by their early advocates, and, predictably, bureaucratic organizations and professional groups have acquired vested interests in the procedures that have evolved.

The planners of the New Deal were dissatisfied with "the medley of unrelated projects and policies" that then constituted governmental planning and development of water and land resources, and they sought to devise in their place unified policies to control public investments in this sector.<sup>2</sup> Their "guiding principles" for "a sound water policy" emphasized (1) "economic and social justification ... A sound water policy ... will be concerned

<sup>1</sup> Robert Dorfman (ed.), *Measuring Benefits of Government Investments* (Washington, D.C.: Brookings Institution, 1965), pp. 8, 9.

<sup>2</sup> Their ideas are represented in reports of the National Resources Planning Board and its predecessor agency, the National Resources Committee. See National Resources Committee, "Drainage Basin Problems and Programs, 1936," which is Pt. II of *Public Works Planning* (Washington, D.C.: Government Printing Office, 1937); National Resources Committee, *Drainage Basin Problems and Programs, 1937 Revision* (Washington, D.C.: Government Printing Office, 1938); National Resources Planning Board, "National Water Policy," in *Development of Resources and Stabilization of Employment in the U.S., Part III*, pp. 21-50 (Washington, D.C.: Government Printing Office, 1941). The quotations in this and the following two paragraphs are from pp. 7 and 8 of the 1937 Drainage Basin report, but with minor editorial variations, the same concepts can be found in the 1936 and 1941 reports.

with the promotion of public safety, public health, the public convenience and comfort, the economic welfare of the public, the establishment or maintenance of a high standard of living"; and (2) "integrated control and use of water, within the changing limits of technical feasibility and of economic and social justification."

To implement the principle of integrated control, the planners held that rivers should be developed for multiple rather than single purposes, and that the relevant unit for multipurpose planning and development should be the river basin rather than a single river sector. By "purposes" these planners meant products produced by a public investment, not its economic and social justification-not, as we should say today, its objectives. Thus the purposes of multipurpose planning included such products as flood damage reduction that is provided by levees or by reservoir space which is used to store flood runoff; water supplies for municipal, industrial, and irrigation uses that are provided by storage reservoirs; navigation, sport fisheries, and pollution abatement that are provided by control of low river flows, which are made possible, in turn, by storage reservoirs.

To implement the principle that public investments in the development of resources should have broad economic and social justifications, the planners proposed that a "standardized and modernized" procedure of benefit-cost analysis be developed. This procedure "will take account of social benefits as well as economic benefits, general benefits as well as special benefits, potential benefits as well as existing benefits." In short, "all types of benefits and costs should be evaluated on a consistent and comparable basis."

Thus public investment planning was to be multiobjective, with the aid of the technique of benefit-cost analysis, and multipurpose, with the aid of the technique of multiple-purpose planning. It is a thesis of this article that the first goal, multiobjective planning, has not been realized, in part because of limitations that have been imposed on the use of benefit-cost analysis; and that the second goal, multipurpose planning, has been overdeveloped, in part because the techniques used for this end have been used to compensate for the retarded development of benefit-cost analysis. I shall explore the reasons for this uneven accomplishment, both

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those owing to the evolution of the analytical techniques themselves and those that are related to bureaucratic conduct and to executive-legislative relations.

### *I. Multiple-Purpose Planning*

The technique of multipurpose planning has grown over the years into a caricature of itself. Today the quality of water resource plans is judged frequently by the extent to which they are comprehensive or multipurpose, by how many of all possible purposes have been included in them. Comprehensiveness in these terms is, of course, a misapplication of the original concept of integrated control and use of water resources, which was not that all purposes that are achievable should be included in all plans, but that all purposes should be considered as eligible to be included so that the *most important* ones can be incorporated.<sup>3</sup> Importance in this context is a function of objectives, or the economic and social justification, for public investment in the development of resources; and the technique for measuring the relative importance of investments in different purposes is, presumably, benefit-cost analysis (which we study in the next section of this article).

The present "comprehensiveness rule" has been supported by bureaucratic organization and has evolved in response to it. Agencies with limited rather than general interests in river basin development-the Fish and Wildlife Service, for example-have promoted administrative procedures and in one case legislation that require the principal planning agencies-the Corps of Engineers and the Bureau of Reclamation-to refer to them for review all proposed plans, so that the limited-purpose agencies can determine whether their interests have received proper attention.<sup>4</sup>

<sup>3</sup> Thus, the NRPB report on "National Water Policy" stated: "No matter what the originating purpose of a project . . . every other reasonable purpose must be considered adequately in determining its final scope and character if the project plan be sound." National Resources Planning Board, 1941, op. cit., pp. 24, 25.

<sup>4</sup> For interagency review procedures, see Corps of Engineers' planning manual EM 1120-2-101, Sects. x, xl. For legislation, the Fish and Wildlife Coordination Act, 48 Stat. 401, as amended, 16 USC 661 et seq.

These review agencies have neither the expertise nor the interest to judge whether a plan represents over-all a good combination for river basin development; their concerns are almost exclusively with their own purposes, and they are likely to give an unfavorable opinion of any report that does not propose a high level of development or protection of these purposes.

Unfavorable opinions by one or more special-purpose agencies do not necessarily kill a river basin plan, but they may do so, and in any case they are likely to prolong consideration and defer approval of plans by higher authorities.<sup>5</sup> To avoid vetoes or delays of their plans, the principal planning agencies have adopted several strategies. One is to revise their reports so as to satisfy special-purpose objectors, even though to do so is, in their view, to reduce the benefits that could be achieved in developing the river. A second strategy of the principal planning agencies is to anticipate objections and willy-nilly to include higher levels of the special purposes in the reports than they would without the threat of review.

Third, the principal planners co-opt the review agencies into the planning process by asking them to prepare reports on their special purposes, which are then included as appendices in the principal agency's report. The planners are not thereby required to accept the proposals in the several appendices, but they are under considerable pressure to do so, for the special-purpose agencies have retained the right to review the final report and to object to it if, in their opinions, it ignores the data and proposals of their appendices.

Finally and most recently, the principal planning agencies have in some cases—as examples, the Susquehanna River and Connecticut River basin reports of the Corps of Engineers—organized coordinating committees that include representatives of special-purpose agencies, to approve the principal report, and in some degree to prepare it. This latest procedure has been added to the others, rather than substituted for them, however. Thus, the special-purpose agencies continue to prepare their appendices, and they

<sup>5</sup> Agencies concerned primarily with wildlife and recreation have strong constituencies in the conservation organizations and can mobilize outside support for their comments and recommendations.

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**appear to have retained** the right to review and object to the report that they have helped to make.

Review procedures, therefore, have become a means for insuring that certain purposes are included in development plans, rather than a means for insuring that the purposes are evaluated in the planning process. The promotion by special-purpose agencies of elaborate review procedures as a means for protecting their interests in a program, even when these interests are peripheral to the program, is a familiar form of bureaucratic conduct. Control over communications, by means of a right to review and comment on another agency's proposals, is a technique for acquiring power over the agency without organizational change.

**In the case of water resource planning this stratagem got off to a -good start** in the late 1930s and the 1940s because the principal planning agencies were themselves more interested in developing certain purposes than others-the Corps of Engineers in navigation and flood control, the Bureau of Reclamation in irrigation and electric energy; <sup>6</sup> and because the technique of benefit-cost analysis was developed in those years in a way that restricted the types of benefits and costs that could be counted, so that most of the benefits and costs of some special purposes were of necessity **excluded** from this important planning calculation. (This latter point will be explained below.) **As for the qualifications of the principal planning agencies**, these have been changing in the last decade. The Corps of Engineers, for one, is in the process of becoming a genuine multipurpose planning agency; it is prepared to consider all purposes as eligible to be included in river basin plans without preference, and to include in any single plan only those purposes that are the most important. But the Corps is in the anomalous position of being unable to operate in this way because of the present requirements of multiple-purpose planning.<sup>7</sup>

<sup>6</sup> Arthur Maass, *Muddy Waters: The Army Engineers and the Nation's Rivers* (Cambridge, Mass.: Harvard University Press, 1951), pp.145-207.

<sup>7</sup> Recent studies in which the Corps has made or is making special efforts to achieve genuine multipurpose and multiobjective planning include several surveys in the Appalachia region, e.g., Upper Licking River Basin, Kentucky; survey of the Susquehanna River Basin; North Atlantic Framework Study; and the agency-wide Planning-Programming-Budgeting System. See U.S. Water Resources Council, *Conference on Economic Analysis in Comprehensive River Basin Planning, March, 1968* (Washington, D.C.: The Council, 1968), and Department of the Army, Office

At the same time and largely for the same reasons that river basin plans have come to be judged by the extent to which they are comprehensive, the planning process has come to be rated by the quantity of coordination that is practiced, that is, by the extent to which all conceivable interests have been given a voice in planning. Here, as in the case of comprehensiveness, a decision rule, coordination, may have been used to obscure rather than focus on the objectives of public action. In good part to insure full coordination with special interests and with state governments, the

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of the Chief of Engineers, "Water Resources Program Memoranda for PPBS" (1967.8, mimeographed), which is discussed in U.S. 91st Congress, House Committee on Appropriations, *Hearings on Public Works Appropriations for 1970* (Washington, D.C.: Government Printing Office, 1969), Part I, pp. 62-64.

These Corps planning initiatives have resulted in part from efforts to apply to the Corps' planning process the findings, recommendations, and research fallout of the Harvard Water Program, the University of Chicago program in flood plain management, and the studies on alternatives in water management by the National Academy of Sciences-National Research Council. After the Harvard Water Program published its first large report in 1962—*Design of Water-Resource Systems: New Techniques for Relating Economic Objectives, Engineering Analysis, and Governmental Planning*, by Arthur Maass, Maynard M. Hufschmidt, Robert Dorfman, Harold A. Thomas, Jr., Stephen A. Marglin, and Gordon Maskew Fair (Cambridge, Mass.: Harvard University Press) -the Corps contracted with this group to study application of its findings to Corps planning. The principal report that resulted from this effort—"The Water Resource Planning Process-Relation to Corps of Engineers Planning," by Maynard Hufschmidt-is an internal Corps document, but several other reports were published subsequent to their submission to the Corps. These include: Maynard M. Hufschmidt and Myron B. Fiering, *Simulation Techniques of Water Resource Systems* (Cambridge, Mass.: Harvard University Press, 1966) ; Myron B. Fiering, *Streamflow Synthesis* (Cambridge, Mass.: Harvard University Press, 1967) ; Arthur Maass, "Benefit-Cost Analysis: Its Relevance to Public Investment Decisions," *Quarterly Journal of Economics*, LXXX (May 1966), 208-226; Robert Dorfman, "Formal (Mathematical) Models in the Design of Water-Resource Systems," *Journal of Water Resources Research*, I (Third Quarter 1965), 329-336; Robert W. Kates, *Industrial Flood Losses* (University of Chicago Department of Geography Research Paper No. 98, 1965). Although not a report to the Corps of Engineers, a related study of this same research group was Stephen A. Marglin, *Public Investment Criteria* (Cambridge, Mass.: M.I.T. Press, 1967) .

The noteworthy change between 1948 and 1968, for example, in the attitude and policy of the Corps of Engineers is due to several factors, apart from the personalities of Corps' leaders: a decision made in the middle 1950s to cooperate with, rather than oppose, constructive critics in the academic community; increasingly effective control by the Bureau of the Budget over the legislative programs of executive agencies; the Corps' need for broader support due, in addition to the factors above, to the relative decrease in significance of water resources development in the sum of federal programs and to the degrading of Corps' representation at the Cabinet level. With the merger of the Department of the Army into the Defense Establishment, the Corps' principal political representative, the Secretary of the Army, lost cabinet status, and the Secretary of Defense has had little time for, or interest in, the Army's civil functions. The Secretary of the Interior has become more than ever the President's spokesman in water resources matters.



planning process for water resources has only recently been “rationalized” to require, in what has been called “the ideal situation,” the following separate planning steps before construction can begin on a project: (1) National Assessment of Regional Supplies and Requirements, (2) Regional Framework Study-Type 1, (3) Comprehensive, Coordinated, Joint Plan for a Region, (4) Comprehensive River Basin Study-Type 2, (5) Project Studies-Type 3, including several substages of examination, survey, and advanced engineering and design. The Assessment, the Comprehensive Plan, and the Type 1 and Type 2 studies are prepared by river basin commissions or “other Federal interagency-State coordinating organizations” of a region or basin. Type 3 studies are prepared by the principal planning agencies but are subject to all of the special-purpose reviews that have been discussed.

The average estimated time required to complete Type 1 and Type 2 studies is seven years each, to which must be added in each case one year for “coordinated report review” by the cabinet-level Water Resources Council. Average estimated time to prepare and review Type 3 studies is six years. If these are done seriatim, as in the so-called “ideal” planning procedure, and starting from scratch, that makes 22 years of planning. And according to the Corps of Engineers, this report preparation time “is related primarily to social rather than engineering complexity.” The first (1968) annual report of the Pacific Northwest River Basins Commission tells us that the Type 1 Framework Study for the Columbia-North Pacific Region is a joint effort of numerous agencies in the seven Pacific Northwest states and some 22 agencies in nine federal departments. The Commission, whose fifteen members represent the President, nine federal departments or agencies, and five states, has responsibility for coordinating the study. It was started in 1965 and is scheduled to be completed in 1971, when results will be published in a main report and sixteen appendices, nine of which deal with special purposes such as fish, wildlife, recreation. The search for complete coordination has introduced incredible complications into planning. We can probably move from concept to achievement more quickly today in building a moon station than a single large river dam.<sup>8</sup>

<sup>8</sup> The “ideal” planning procedure is not being realized, of course. Type 3 studies are being made while Types 1 and 2 are under way. Nonetheless, approval of

## II. Benefit-Cost Analysis

At the same time that multipurpose planning has been reduced to a burlesque, benefit-cost analysis (hereafter referred to as bca) has been so stunted in its development that it is today a mischievous dwarf when compared to its potential as a technique of analysis.

The Flood Control Act of 1936, the statutory foundation for bca in water resource planning, provided, in language similar to that of the National Resources Planning Board reports, that projects are to be considered feasible economically if "the benefits, to whomsoever they may accrue, are in excess of the estimated costs." <sup>9</sup> However, the words "benefits" and "costs" have no meaning *per se*; they are significant only in relation to particular objectives. Depending on the objectives, a project or program can be designed, and its benefits and costs measured, in terms of increased national income-i.e., economic efficiency benefits and costs; redistribution of national income to certain social and economic classes and regions of a nation and the world; objectives such as national selfsufficiency, national defense, the preservation of wild areas; or any combinations of these. Thus the 1936 provision,

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**projects** that are recommended in Type 3 studies may well be delayed by the ongoing broader **surveys, for those who** oppose the recommendations of a Type 3 study will argue that these should not be authorized until they can be considered in the context of the relevant Framework and Comprehensive River Basin surveys. Also, government planners are now considering a procedure whereby the **projects that are considered first** priority in a Framework study can be planned in greater detail than other proposals in such a study., so that it may be possible to move to Type 3 project planning for them before the relevant Type 2 Comprehensive River Basin studies have been completed. If this procedure is adopted, it will nonetheless require an additional one to one and one-half years after the Framework study is approved to prepare reports suitable for authorization of Type 3 studies. Finally, once the Type 1 and 2 studies are completed for any area, project studies can be made immediately, in an average time of six years.

See U.S. Water Resources Council, *The Nation's Water Resources* (Washington, D.C.: Government Printing Office, 1968), pp. 5-9-8 to 5-9-11; Harry A. Steele, "The National Water Resource Assessment and Regional Framework Plans," *American Journal of Agricultural Economics*, L (December 1968), 1647-1654; Department of the Army, Office of the Chief of Engineers, "Comprehensive River Basin Studies--Study Schedule" (typescript, May 1969), and "Report on Survey Report Procedures to House Committee on Public Works" (offset, April 1966); Pacific Northwest River Basins Commission, *Annual Report for F. Y. 1968* (The Commission, 1969). This last report emphasizes the Comprehensive Plan as apart from Framework and Basin studies.

<sup>9</sup> 49 Stat. 1570.

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calling for the measurement of benefits “to whomsoever they may accrue,” was not operational. And the executive agencies, working through a succession of interagency committees, have since 1937 sought to give useful meaning to this metric.<sup>10</sup> Their deliberations have had two major results.

First, they have designated a single objective that is to be maximized in bca, namely, national economic efficiency. Bca has become a technique for designing projects that will make the greatest contribution to national income.

Second, and consistent with the first result, the executive agencies have provided that economic efficiency benefits are to be treated as the principal or primary benefits of water programs. The all-important ratio of benefits to costs is calculated in these terms only. Benefits and costs that relate to other objectives are given lip service in planning guides, but in the evaluation of projects and

<sup>10</sup> The following list includes for illustration some of the many interagency committees that have been concerned with definitions of benefits and costs and the titles of their principal reports:

1938. Water Resources Committee, National Resources Committee, *Drainage Basin Problems and Programs: 1937* Revision, pp.7-10, 68-120.

1941. Subcommittee on National Water Policy, Water Resources Committee, National Resources Planning Board, “National Water Policy,” printed as Part 3 of *Development of Resources, 1941*.

1947. Subcommittee on Benefits and Costs, Federal Inter-Agency River Basin Committee, *Qualitative Aspects of Benefit-Cost Practice*.

1948. Same, *Measurement Aspects of Benefit-Cost Analysis*.

1950. Same, *Proposed Practice of Economic Analysis of River Basin Projects* (the so-called “Green Book”).

1951. Interagency Water Policy Review Committee, Bureau of the Budget, “Draft Water Resources Policy Act of 1952” and Budget Circular A-47.

1955. Presidential Advisory (Cabinet) Committee on Water Resources Policy, *Water Resources Policy*, especially Section 6: “Evaluation of Water Resources Projects.”

1962. President’s Water Resources Council, “Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources.”

1968. Economics Committee, U.S. Water Resources Council, *Conference on Economic Analysis in Comprehensive River Basin Planning*.

In addition to the interagency committees, there have been a number of *ad hoc* government committees concerned with this same problem. These include:

1950. President’s Water Resources Policy (Cooke) Commission, *A Water Policy for the American People*.

1955. Commission on Organization of the Executive Branch of the Government (2nd Hoover Commission), *Water Resources and Power and Task Force Report on Water Resources and Power*.

1961. Panel of Consultants to the Bureau of the Budget, “Standards and Criteria for Formulating and Evaluating Federal Water Resources Development.”

programs they are treated as supplementary or secondary to efficiency benefits.<sup>11</sup>

As a consequence of these decisions, programs and projects for water and related land resources have been alone among all government programs and projects in having to justify themselves in terms of a national income objective. Yet the legislative histories of major water statutes—the Reclamation, Flood Control, and Tennessee Valley Acts—like the Planning Board reports of the 1930s, show that executive and legislative policymakers have not been concerned exclusively with national economic efficiency. As a rule the U.S. government has not undertaken investment programs for the purpose of increasing national income alone, nor even for this purpose principally. Redistribution of income to classes or to regions has been one of several other important objectives in government plans, as witness the programs for Appalachia and the Tennessee Valley.

Tension between the implicit if not explicit legislative objectives of water resource development, on the one hand, and the restriction of these brought about by the limitation of benefit-cost analysis to efficiency, on the other, has led to disagreements in the executive and Congress over what are to be considered properly as primary or efficiency benefits. Confronted with an analytical technique that counts efficiency benefits only or largely and with pressure from overseers and auditors in the Budget Bureau, Congressional Committees on Appropriations, and the General Accounting Office to demonstrate that their projects have a benefit-cost ratio greater than unity, those planners who have wanted to emphasize what they believed to be the broader objectives of water programs have tried to sweep into the efficiency category all sorts of benefits that the purist knows are not really efficiency benefits.

This resolution of the uncertainties of 1936 raises several interesting questions. Why did the executive agencies paint themselves into the economic efficiency corner? Why have they stayed there? Why has this key policy decision been maintained over the

<sup>11</sup> Just as there are no benefits and costs in the abstract, the classes “primary” and “secondary” have no significance except in relation to specific objectives.

The executive agencies have used the phrase “secondary benefits” also to describe a small class of efficiency benefits that are induced, rather than produced directly, by public investments, but we are not concerned with that distinction here.

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years by purely executive actions, without any systematic discussion and confirmation in the legislation process?

The most important reasons why the interagency committees initially designated national income as the single objective of bca were these. In government, knowledge of the economics of public investment was primitive in the early years. The professionals were feeling their way, experimenting with microanalytical techniques for public investment that were not well understood. Thus, for example, the now familiar definition of national economic efficiency, as increases in national income or product, came to be understood and accepted by the executive experts as a consequence of their efforts to define the benefits and costs provision of the 1936 Act. Second, the executive experts were much influenced by the analytical techniques of the "new welfare economics" which focused on economic efficiency.<sup>12</sup> Also at the time, in the late New Deal period, considerable attention was being given to construction of public works as a means of fighting the depression, thereby reducing national unemployment and increasing gross national product; and water projects were an important class of public works.<sup>13</sup>

The facts that the executive branch has stayed with its initial decision in favor of national economic efficiency in bca and that the policy implications of this decision have never been examined systematically in the legislative process are owing to different reasons, however-principally to the successful efforts of those who are much concerned about limiting the size of federal expenditures on water projects. Policymakers will be concerned inevitably with the expenditure levels of programs for water resource development, in terms of both fiscal policy and the relative importance of water and other federal programs. But to control expenditures by imposing on the planning agencies criteria that confine the types of benefits that can be used in designing and evaluating projects,

<sup>12</sup> On this point see Maass, "Benefit-Cost Analysis: Its Relevance to Public Investment Decision," *op. cit.*, pp. 213-218.

<sup>13</sup> The National Resources Committee, in its 1937 Revision of *Drainage Basin Problems and Programs*, *op. cit.*, said at p. V: "... policies for drainage basin development must be related ... to the business cycle. ... The Committee has previously emphasized and now reiterates the important consideration that both the amount and type of construction and the division of costs among Federal, State and local agencies should vary with the movements of the business cycle."

without considering explicitly the policy implications of these criteria, can mean that a restricted budget is invested in a group of projects that does not fulfill the community's objectives as well as one or more other groups of projects might fulfill them. A procedure which, for the purpose of limiting expenditures, excludes from project design all benefits other than those related to efficiency has the result of foreclosing any real consideration of alternative objective functions.

There are other techniques for determining program levels that do not suffer this disqualification.<sup>14</sup> Nonetheless, some executives, particularly those in the Bureau of the Budget, have defended vigorously the use of an efficiency-oriented criterion for design, although they have not always been explicit that their purpose in doing so is to limit expenditures. To protect the executive against political pressures for raising program levels, these officers have chosen to rely on a control technique that is indirect and, therefore, difficult for opponents to reach and change.

The budget cutters have received support from partisans of two other points of view. Some economists, both in and out of government, believe that the federal government should design and develop water resource systems for the objective of increasing national income, but not for the purpose of redistributing income to the disadvantaged or to underdeveloped regions of the nation. The latter objective can be achieved more efficiently, they believe, by alternative government programs, principally those involving

<sup>14</sup> For a systematic treatment of budget constraints in this context, see Stephen A. Marglin, "Economic Factors Affecting System Design," in *Maass, et al., Design of Water-Resource Systems*, *op. cit.*, pp. 159-177.

In a similar manner policymakers who are concerned that expenditure levels for water resources programs may be too high or simply out of control have sought to reduce or control them by raising the discount rate that is used in the design of projects for the purpose of evaluating on a common basis benefits and costs that are realized in different time periods. In general, raising the rate reduces the size and cost of projects and programs, because it tends to discount more heavily the value of benefits, many of which are received in later years of a project's life, than that of costs, which are incurred typically in the early years. But to control expenditures by imposing on the planning agencies a discount rate that is designed for this purpose, rather than for the purpose of reflecting intertemporal comparisons of benefits and costs, is to foreclose policymakers' consideration of these intertemporal comparisons and to invest in a program of projects that in the general case will be less responsive to community objectives than a number of alternative programs.

For a systematic treatment of discount rates in this context, see Marglin, *Public Investment Criteria*, *op. cit.*, pp. 47-69.

direct payments to the groups or areas; and they *prefer* the more efficient means.<sup>15</sup>

Finally, there is a group of experts that has a professional and vested interest in perfecting the technique of bca. When this technique is limited to efficiency, there are nonetheless many difficult problems in applying it to public investments--for example, estimating beneficiaries' willingness to pay where existing market prices are not relevant or where market prices do not exist, accounting for so-called externalities, and defining proper discount rates; and these men want to solve these problems before they are asked to broaden the scope of their analysis to include other types of benefits and costs that may be even more difficult to handle. They do not object necessarily to designing water resource programs and projects for objectives other than efficiency, but they want to limit bca to the efficiency objective. The consequences, however, of their pursuit of perfection in analysis are likely to be the same as those sought by men who would limit the design of projects to gains in national income. This is so because the apparent precision of the ratio of efficiency benefits to costs gives it a dominant weight, compared to descriptive statements about other objectives, in decisions on how to rank and approve projects.

Because they fear that their preference for a predominant reliance on national efficiency benefits may not necessarily be that of the Congress, or alternatively, because they fear that Congress men do not have the capacity to understand the consequences of any actions that they might take on this subject, the experts in the executive who are oriented toward economy and efficiency have sought to avoid legislative activity on the criteria themselves. They have not initiated major legislative proposals on criteria; these have been consummated by purely executive measures. This procedure has had a crucial impact on executive-legislative relations in water policy; and for this reason the next section of this article is devoted to an analysis of the recent history of these relations.

It should be obvious that developments of the two New Deal

<sup>15</sup> For an illustration of this view, see Robert Haveman, "Benefit-Cost Analysis: Its Relevance to Public Investment Decisions: Comment"; and for a rebuttal, Arthur Maass, "Reply," *Quarterly Journal of Economics*, LXXXI November 1967, 695-702.

techniques-multiple-purpose planning and benefit-cost analysis-are related. A limited, efficiency definition of benefits and costs has encouraged those who represent interests that cannot qualify under the definition to evolve alternative means-complex review procedures-to promote or protect these interests. Furthermore, some executives who have supported a restricted definition of benefits in order to hold down expenditures have been sympathetic also to a planning process that, by being complex and lengthy, defers demands on the budget for project construction. Support of national economic efficiency as the metric of bca is for them consistent with support of inefficiency in the planning process, or at a minimum indifference to it-although a limit to the inefficiency that they can tolerate is reached when the costs of planning alone become a significant drain on the budget.<sup>16</sup>

### *III. Executive-Legislative Relations in Water Policy, 1950 to 1969*

In December 1950 the President's Water Resources Policy Commission, an *ad hoc* group of nongovernment experts that had been appointed by President Truman earlier in the year, published a far-reaching report that included proposals for legislation to establish objectives, standards, and criteria for water development programs. This report criticized the evaluation procedures of the executive agencies for excessive reliance on national income benefits and costs and for failure to give sufficient emphasis to other classes of benefits for which the agencies had developed no systematic methods of evaluation. Although the commission proposed that bca continue to be restricted to national income effects, it recommended that the resulting benefit-cost ratio be only part of a formal investment appraisal that was to include also a ranking of nonefficiency benefits and costs along a scale from important to crucial, and an explicit trade-off between this ranking and the efficiency ratio.<sup>17</sup>

<sup>16</sup> Once an initial lag in the planning period is overcome, demands on the budget for project construction can no longer be deferred. But the lag has been getting longer and longer in recent years. See text at note 8.

<sup>17</sup> U.S. President's Water Resources Policy Commission: A *Water Policy for the American People* (Washington, D.C.: Government Printing Office, 1950), Vol. I, pp. 55-6s.



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After some delay, the commission's legislative proposals were subjected to an intensive and elaborate review by the Bureau of the Budget, which for this purpose established an **Interagency Water Policy Review Committee**, and this committee was supported in turn by a galaxy of interagency subcommittees. During the months from November 1951 to February 1952 the interagency committee prepared some 40 position papers on the commission's report. Based on these papers and on other material, the Budget Bureau then undertook to draft a Water Resources Policy Act for submission to Congress, but this task was never completed. The agencies and the Bureau of the Budget failed to reach agreement on many of the act's provisions, and in this situation the Bureau and the White House chose not to develop a leadership position for the President.

With respect to criteria for project design and evaluation, the Budget Bureau did move authoritatively, however. It incorporated in a budget circular, binding on all executive agencies, those criteria that it approved and that in its view could be proclaimed without additional legislative action.<sup>18</sup> Both the decision to substitute an executive action for a legislative proposal and the substance of the standards of the budget circular, which differed significantly in emphasis and detail from those proposed by the Policy Commission, were disapproved by major agencies.<sup>19</sup> Thus, in an environment of agency discord, the Bureau of the Budget was more willing to take executive action that was definitive than to perfect a legislative proposal that would have been subject to further debate in the Congress.

It should be pointed out, however, that the provisions relating to project standards in the Bureau's draft Water Resources Policy Act were so general that *if* the Act had been submitted to and ap-

<sup>18</sup> Budget Circular A-47, 31 December 1953. The circular was binding on executive agencies in the sense that it was used by the Bureau to review agency reports, and any deviation from the circular's criteria had to be justified by an agency. David C. Major, "Decision-Making for Public Investment in Water Resources Development in the United States" (Cambridge, Mass.: Harvard Water Program, 1965), chap. 2, reviews the history of Budget Circular A-47 and related documents.

<sup>19</sup> The Acting Secretary of the Interior wrote to the Budget Director on 3 September 1952, commenting on the draft budget circular: "I believe that a legislative base is essential to the adoption of new substantive policies in this field. ... I do not consider ... a circular to be a suitable means of establishing policy."

proved by Congress in the draft form, a budget circular similar to the one that was issued could have been promulgated to execute the act. In a memorandum to executive agencies analyzing its draft legislation, the Bureau had said that “restriction of the evaluation section of the bill to general principles is based on the undesirability of crystallizing detailed evaluation standards in legislation at this time.”<sup>20</sup> But it was effective legislation action, not crystallization of detailed standards, that was to be avoided; for the latter, as we have seen, was considered to be desirable, where the process could be controlled entirely by the executive branch.

Predictably, some members of Congress, especially but not only those who were unhappy with the substance of the standards of Budget Circular A-47, objected to “the assumption of executive authority over conservation and development policies,” and they sought to “reaffirm Congressional control” over this subject. Their efforts peaked in 1955–1956 when the Budget Bureau sent to the executive departments draft revisions of Circular A-47 that, among other provisions, would have required planning agencies to rely even more heavily than before on the single objective of national income in project design and evaluation. These proposed revisions were based in part on the report of an *ad hoc* Cabinet Committee on Water Resources Policy that President Eisenhower had created in 1954.<sup>21</sup> The President had sent the cabinet committee’s report to the Congress for its information, but the report’s recommendations relating to criteria for project design and evaluation and to certain other subjects were to be effected by executive action.

The House Committee on Interior in 1955 and the Senate Committees on Interior and on Public Works jointly in 1956 held hearings on the draft revised circular; and as a consequence of objections raised in these hearings to both the procedure of execu-

<sup>20</sup> Bureau of the Budget, “Section by Section Analysis of Draft Water Resources Policy Act of 1952” (mimeographed, 2 June 1952), p. 6.

<sup>21</sup> U.S. Presidential Advisory Committee on Water Resources Policy (initially Cabinet Committee on Water Resources Policy), *Water Resources Policy* (Washington, D.C.: Government Printing Office, 22 December 1955). The Budget Bureau participated in the committee’s deliberations. At about the same time the Committee on Organization of the Executive Branch of the Government (Second Hoover Commission) issued its *Report on Water Resources and Power* (H. Doc. 84–208) and the report of its Task Force on Water Resources and Power.

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tive policymaking and the substance of the policy, the Bureau decided to not issue the revised circular.<sup>22</sup> Further efforts, however, by the Congress, especially the Senate committees, to persuade the executive to propose standards to the legislature for its consideration failed; and the Congressional committees themselves were unable to draft legislation on this complex subject without the aid of an executive initiative, including extensive data from the executive agencies on the engineering and economic effects of alternative standards.<sup>23</sup>

The committees failed also to persuade the executive, as a substitute for initiating legislation on standards, to design projects for two or more alternative objective functions, leaving it to Congress to select the project design that it preferred. They did succeed, however, by means of a Senate Resolution that was adopted in 1958, in persuading the agencies to provide Congress, in each survey report, with a limited amount of data on projects and standards that were alternatives to those that were being recommended in the report.<sup>24</sup> But these additional data were written in attachments to the survey reports, so that they did not limit in a meaningful way the agencies' full reliance on Budget Circular A-47 in designing projects and programs. As a matter of fact, the concepts that had been included in the draft revision of this budget circular, requiring more attention than before to national income in project design and evaluation, came to be practiced in the executive agencies to a significant degree, even though the \*Bureau did not formally promulgate them.

Frustrated by the absence of legislative proposals from the executive for water resource development, the Senate in 1959 took the unusual action of establishing a select commission of investigation for the purpose of doing what is ordinarily the executive's work of preparing the early stages of the legislative process.<sup>25</sup> This

<sup>22</sup> U.S. 84th Congress, House Committee on Interior, *Hearings on Discussion of Budget Bureau Circular A-47 and the Related Power Partnership Principle* (1955); and Senate Committees on Interior and on Public Works, *Joint Hearings on Conservation and Development of Water Resources* (1956).

<sup>23</sup> See legislative documents relating to Senate Resolutions 84-821, 85-148, 85-248, 85-299.

<sup>24</sup> S. Res. 85-148; U.S. Army, Corps of Engineers, *Manuals — EM 1120-2-117*, Application of Senate Resolution 148 (1 January 1959).

<sup>25</sup> S. Res. 86-48; S. Rpt. 86-145; 86th Congress, Senate committee on Interior,

committee, which included senior senators from the several legislative committees that have jurisdiction over water matters, was instructed to make studies of “the extent to which water resources activities in the United States are related to the national interest, and the extent and character of water resources activities ... required to provide the quantity and quality of water [needed] between the present time and 1980 ..., to the end that such studies and the recommendations based thereon may be available to the Senate in considering water resources policies for the future.” In its report recommending that the select committee be established, the Committee on Interior observed:

Since 1949, four Presidential commissions and an advisory committee of Cabinet members have made major studies of water resource problems. The reports of these studies have been forwarded to the Congress and they provide much useful information. The reports, however, have not been accompanied by legislative recommendations of the President, and no proposals based on these studies of water resource problems have been transmitted to the Congress in a form that could be considered for legislative action.<sup>26</sup>

In 1959 and 1960 the Senate select committee published in 32 committee prints the results of factual studies that were undertaken at the committee’s request by federal and nonfederal agencies. It held 25 days of public hearings in Washington and throughout the country. The main body of the select committee’s final report said relatively little that was specific about standards and criteria for project evaluation; but a supplemental statement by four committee members criticized bca for its overemphasis on economic efficiency and proposed new standards to take into account the effects of projects on rates of national growth, on the

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*Hearings on S. Res. 48: Development and Coordination of Water Resources; Congressional Record*, CV (1959), 6302–6308.

<sup>26</sup> S. Rpt. 86–145, 6, 7.

This Senate action involved, to be sure, criticism of a Republican administration by the Democratic Senate majority; but it involved, also, criticism of the executive by the Congress. The resolution establishing the select committee was adopted in the Senate unanimously with the active support of both the Democratic and the Republican floor leaders.

**generation of employment in underdeveloped areas and the distribution of income to them, and on the human values of water resource development that do not produce monetary benefits and revenues. "In short, the standard must relate the particular water resource development to our national destiny in a much more complete way than the mathematical cost-benefits device we are now using."** <sup>27</sup>

The select committee made its report ten days after President Kennedy had been inaugurated. Soon thereafter the new Director of the Budget, Mr. David Bell, appointed a Panel of Consultants, who were well-known experts in the field of **public investment economics, to formulate** standards and criteria for designing and evaluating federal water resource projects and programs. This panel in its report, submitted in June 1961, criticized the excessive, almost **exclusive, concern of** the existing standards with national **income as the objective** of water resource development, and it proposed alternative standards and alternative methods of bca that would give greater attention to the other objectives.

As in the case of the 1950 Water Policy Commission, the Budget Bureau was not prepared to accept the proposals of its consultants, nor did it submit the consultants' report to Congress or to the public for their consideration.<sup>28</sup> Instead the report was **handed to an** interagency Cabinet-level committee which drafted a new statement that was subsequently approved by the President to replace Budget Circular A-47. This 1962 statement of criteria, which is still in effect, gives more attention to **nonefficiency objectives** than did the budget circular. It is so general a document, however, and so poorly drawn that it requires extensive **interpretation** and refinement to be operative. **And the** process of refinement has led to continuing the almost exclusive concern of bca with national income benefits and costs.

The 1962 statement was as much an executive document as Budget Circular A-47 which it replaced; for it was not submitted to

<sup>27</sup> The committee's report is S. Doc. 87-29. The quotation is from pp. 142f.

<sup>28</sup> The report was not printed, to the dismay of its authors, although a limited number of mimeographed copies were made available: Maynard M. Hufschmidt, John Krutilla, and Julius Margolis, with the assistance of Stephen A. Marglin, "Standards and Criteria for Formulating and Evaluating Federal Water Resources Developments" (mimeographed, 30 June 1961)

the legislature for review and approval (although there were informal discussions concerning it between the Executive Office of the President and certain members of Congress).<sup>29</sup> The statement differed from its predecessor, however, in that it was approved by the President rather than by the Bureau of the Budget. The Bureau had lost the capacity to act in its own name, because of the unpopularity that it had earned in Congress with Circular A-47.

On recommendation of the President, this modified procedure for approving standards was subsequently written into law, in the Water Resources Planning Act of 1965. This act gave statutory status to a cabinet-level Water Resources Council that, among other duties, was given authority to establish, with the approval of the President, standards and procedures for the formulation and evaluation of federal water projects.<sup>30</sup> It is interesting to note that Congress in 1965 accepted the administration's proposal that the executive alone establish standards and criteria. Given the history of their frustration over Budget Circular A-47, one might have expected Congress to amend the President's bill and provide for legislative review and approval of these standards. The House, on recommendation of its Committee on Interior, did amend the legislation to require that the council hold public hearings before it established standards. The Senate bill had not contained this provision, and the conference substitute included only a requirement that the council consult with interested parties, both federal and nonfederal. But a requirement for Congressional action on the standards was not discussed in the legislative deliberations. At the time, Congress was satisfied, apparently, with a transfer of for-

<sup>29</sup> After it was proclaimed by the President, the statement was transmitted to Congress for its information, for which purpose it was printed as Senate Document 97 of the 87th Congress.

<sup>30</sup> Public Law 89-80. The Water Resources Council includes five cabinet officers and the chairman of the Federal Power Commission as members; two cabinet officers are associate members, and the Director of the Budget and the Attorney General participate as observers.

From the point of view of the Budget Bureau, this change may be more nominal than real; for the President will always ask the advice of the Bureau before he approves of any standards that have been proposed by the Council, and the Bureau's views will be especially important when the cabinet council members disagree. Perhaps for this reason the Council has asked the Director of the Budget to participate in its meetings as an official observer.

mal authority to issue standards from the Budget Bureau to a statutory cabinet council and the President.<sup>31</sup>

It would be incorrect to conclude from this evidence, however, that Congress wants to avoid participation in determining standards and criteria for public investments. As we shall see below, a significant portion of the Senate has involved itself recently in the standards work of the Water Resources Council. Also, the year after it passed the Water Resources Planning Act, Congress amended a similar executive proposal so as to require legislative approval of investment criteria. The President's legislation to establish a Department of Transportation provided that the Secretary of Transportation should develop standards and criteria for the economic evaluation of proposals for the investment of federal funds in transportation facilities, and that he promulgate these upon their approval by the President. After considerable deliberation, Congress amended this to require legislative approval of the standards before they are promulgated. Congress also added to the administration bill a section that instructed federal agencies on how to calculate primary direct navigation benefits of water resource projects, thereby overruling a 1964 Budget Bureau standard that had restricted the definition of these benefits, and withdrawing from the Water Resources Council and the President authority to effect standards in this area.<sup>32</sup>

<sup>31</sup> See legislative documents relating to Water Resources Planning Act of 1965, especially S. Rpt. 89-68; H. Rpts. 89-169 and 89-603.

<sup>32</sup> Some professionals in the executive and in the academic community have said that Congress's definition of benefits in this case is theoretically indefensible; and furthermore that Congress's action proves that the legislature cannot be trusted with the subject matter of objectives and standards. On the first point the critics are no doubt right; the Congressional definition is not consistent with a pure objective of economic efficiency. The disagreement was really over objectives. Those who wanted the broader definition of direct navigational benefits meant that the single objective of national income was not the only component of the objective function of the Government's navigational program.

As for the second part of the criticism, that Congress's action in this case proves that it is not to be trusted with matters of objectives, standards, and criteria, the objectors in the executive have themselves to blame in part. The standard that Congress sought to overrule by its actions had been adopted in 1964 by executive action, with no formal presentation to, and consideration by, Congress. Had the executive initiated a legislative action in that case, the results might have been different in several respects. Having made a legislative proposal, the executive officers would have been in a better position to explain and defend it than they were in defending themselves against a Congressional initiative to overrule a purely executive action. Furthermore, the subject would have been considered by the

The Water Resources Council has only recently turned its attention to standards and criteria, having devoted its early years to organizational matters, including “rationalization” of the planning process, as discussed in the first section of this article.<sup>33</sup> Up to the fall of 1969, the only standard that has been recommended to the President by the Council, and approved by him, is one that raises the discount rate that is used by the planning agencies to compare present and future benefits and costs. As explained previously (see note 14), a principal consequence of such a rate increase is to reduce the size and cost of water resources projects and programs; and it is well known that the Budget Bureau, with this purpose in mind, put pressure on the Council to take the action. The President’s Budget Message of January 1968 included raising the water program discount rate as one of several “reforms” proposed for the purpose of reducing the levels of various programs, with the notation that although no immediate savings would be realized from this particular reform, the long term effects could be substantial.<sup>34</sup> Significantly, public announcement in December 1968 that the President had approved the higher rate was made by the Budget Bureau, not the Water Resources Council.<sup>35</sup>

The limiting effects of higher discount rates are especially pronounced when they are used with a technique of analysis that restricts benefits and costs to those related to efficiency or national income gains. Thus, when it became clear that the Water Resources Council would raise the discount rate, those who opposed reductions in water programs, or who opposed this indirect technique for achieving such reductions, began to insist that the Council review all procedures for project evaluation, especially those that restrict the counting of benefits in bca.

The Senate Committee on Interior, reporting in June 1968 a minor bill to revise the authorization of appropriations for ad-

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committees that deal with public works and commerce as part of standards legislation rather than, as was the case, by committees on government operations as part of an organizational proposal to create a new department.

See legislative documents relating to Department of Transportation Act of 1966, P.L. 89670, especially H. Rpt. 894701; S. Rpt. 89-1658; H. Rpt. 89-2236.

<sup>33</sup> See pp. 216-217 *supra* and Steele, “The National Water Resource Assessment . . .,” *op. cit.*

<sup>34</sup> H. Doc. 90-225, Part I, pp. 19-22.

<sup>35</sup> Bureau of the Budget Press Release, 22 December 1968.



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ministrative expenses of the Council, said: "The Committee believes that the Council should give attention to all of the criteria utilized in the economic analysis of water resource projects, of which the discount rate is only one part. Of particular concern is the impact of water resource development upon other [than efficiency] economic and social objectives of the nation." <sup>36</sup> In January 1969, after the discount rate order had been issued, fifteen senior Senators, ten Democrats and five Republicans, wrote the Secretary of the Interior, who is chairman of the Council, complaining because public hearings had not been held on the discount order; stating their view that increasing the discount rate cannot be justified without at the same time improving methods of benefit analysis so as to account for nonefficiency benefits; requesting the Council to give priority to developing revised standards for estimating benefits; and urging that regional hearings be held "to insure the full development of all the .. facts necessary to make a responsible determination as to improved methods of computing project benefits." <sup>37</sup>

In response to these and other communications received from many sources, the Council decided to review evaluation procedures. It formed a Special Task Force for this purpose, and held a series of regional and national hearings during 1969. It is too early to tell what the Council and the President will do, but preliminary drafts by the Task Force, now circulating, would make important changes in existing standards, including recognizing multiple objectives and reducing drastically the special preference that has been accorded heretofore to national income gains. Although the proximate cause of these proposed standards was, apparently, public reaction to the increase in the interest rate, their drafting was made possible by recent developments in multiple-objective theory and recent efforts of the Army Corps of Engineers to implement multiple-objective techniques.

As for procedure, the Council intends, apparently, to promulgate the new standards, after the public hearings, and after obtaining the President's approval. It will be interesting to see how the

<sup>36</sup> S. Rpt. 90-1234, p. 3.

<sup>37</sup> The letter of 13 January 1969 has been widely reported, including *Reclamation News*, February 1969, p. 1.

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Council handles Congressional liaison in this round of decision-making. The chairman of the Flood Control Subcommittee of the House Committee on Public Works, after criticizing present standards, announced in June 1969 that his group would hold public hearings "on the entire matter of estimation of benefits of water resource development projects with a view toward determining appropriate legislation setting forth the necessary criteria for use by the pertinent federal agencies." <sup>38</sup>

In summary, between 1950 and 1969 the leaders of the executive have not submitted a proposal on objectives and standards to Congress for fear that Congress might butcher their sacred cow of national economic efficiency. But by not doing so they have taken unto themselves responsibility for determining national policy without discussion or effective oversight in the legislative process. When Congressional committees pointed this out, the executive responded, in effect, that the provisions of their circulars were not so much policy objectives as design criteria, and that the Congress would have an opportunity to review how the criteria were being applied when it considered for authorization the individual projects that had been designed in accordance with them.

It is one thing if Congress's major activity in the legislative process is to review and authorize reports on individual projects that have been planned in accordance with the single objective of national economic efficiency, without any way of determining what the recommendations would have been under alternative objectives; and quite another if its major activity is to review and accept, reject, or amend the President's proposals on what should be the objectives for planning projects in the first place. The committees of Congress have wanted more of the latter action; the executive has preferred that Congress concern itself principally with individual projects.

These facts illustrate an aspect of executive-legislative relations that is poorly understood. Emphasizing service to constituents as the role of the individual Member of Congress, many political analysts contrast a project-oriented legislature with a general-interest-oriented executive-the President is, after all, the only

<sup>38</sup> *Congressional Record* (daily ed., 10 June 1969), p. H4659.

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elected officer who is accountable to the nation as a **single constituency**. But this contrast is not necessarily valid.

Constituency service is, to be sure, one role that all legislators play, but they play other roles too--in general legislation, **administrative oversight**, public education--and each member is free to select the roles that he wants to emphasize.<sup>39</sup> Furthermore, the committee structure and floor procedures of Congress are designed to enable the legislature to play as its principal institutional role that of control over the executive's legislative initiatives and the executive's administrative performance.<sup>40</sup>

**In certain situations** where the President fails to initiate legislation, Congress can do so. But that is abnormal; in the normal case the President sets the agenda for the legislature. Thus, if Congress is concerned principally with picayune details of **programs** or with **individual small projects**, rather than with **objectives** and criteria for designing a program of projects, it is frequently because these details and projects are what the President has presented to Congress on his initiative. It is popular to speak of the biennial omnibus Rivers and Harbors and Flood Control Act that authorizes individual projects as Congress' porkbarrel bill. It would be more accurate to call it the President's porkbarrel bill, for, with few exceptions, all of the projects in the bill have been either recommended to the Congress by the President or submitted to the Congress with his approval but without recommendation. This has been the form of the President's initiative; and in recent history no President has used his initiating authority to propose that Congress consider standards for a program of water resource projects. Quite the opposite, as we have seen, even though Congress has been receptive to, even insistent on the President's taking the higher road.

Members of Congress as constituency servicemen are interested in securing authorization for water projects in their districts, but they are interested also in program standards, because these stand-

<sup>39</sup> Lewis A. Dexter, "The Job of the Congressman," in Raymond A. Bauer, Ithiel Pool, and Lewis A. Dexter, *American Business and Public Policy* (New York: Atherton, 1963) .

<sup>40</sup> For further development of these points, see Maass, "System Design and the Political Process," which is Chapter 15 of Maass, et al., *Design of Water-Resource Systems*, *op. cit.*

ards determine how their projects will be designed, but also because they have a broader interest in the government's role in public investments for the conservation and development of resources. In this area of government activity, and no doubt in others, the executive, on the other hand, prefers, if it can, to limit Congress to a narrow role of constituency service, in part, perhaps, because the President wants to use projects in return for votes, but principally because professionals in the executive do not trust Congress in matters relating to future demands on the budget. Where the facts and analyses necessary for legislative initiative are complex, as they are in criteria for public investments, the executive stands a good chance of realizing its preference; Congress does not have the capacity to initiate on its own.

#### *IV. Public Investment Planning: Capacity for Change*

Is the present state of public investment planning in the United States the natural and inevitable consequence of the play of special interests in our society, or can the relations between multipurpose planning and benefit-cost analysis be molded into different forms? The prevailing fashion in political science would argue the former: that the present state of affairs is the consequence of a natural, partisan, mutual adjustment among the interests, and that this is fine. I do not agree.

An adequate analysis of political institutions in terms of interactions among different groups and their representatives must perform two different, but related, tasks. The first assumes that the preference functions of the participants in decision-making are given, and is concerned with factors that determine the influence of the various participants' interests on the final outcome. This is the so-called bargaining problem, and it has preoccupied political scientists in recent years. This attention has led them to see government institutions principally as facilities for bargaining. It has led, also to a skepticism about reform, for the models that political scientists have used to study bargaining are nominally nonprescriptive. In fact, however, these models have been used widely to defend the present condition. Assuming that the par-

ticipants are willing to live with the results of their bargaining and that there is some minimal freedom for new groups to form and participate, then whatever is right.

The second task relates to how alternative forms of political institutions affect the preference functions of those involved in decision-making. It does not assume that these preferences are given, as in the bargaining problem, but that institutions themselves influence the preferences. The participants in any situation of choice can respond in several ways—in terms of their individual interests in the narrowest sense, of the sectional interests of their occupational, bureaucratic, or other social groups, of the general interests of society as a whole as they perceive these; and the particular response that they make is determined in part by the structures and processes of government.<sup>41</sup>

According to this analysis government institutions are needed not only to facilitate bargaining, but for the equally important purpose of framing the question so as to elicit the “right,” or in our case, community-oriented, response. This half of the study of institutions has been largely neglected by political scientists in recent years, yet it is more likely than the study of bargaining to lead to a consideration of alternative institutions and reforms—to be less complacent about the *status quo*.

With some confidence I can say that if behavioral, bargaining models had been in style in 1921, political scientists would then have analyzed—i.e., predicted—that the objectives of the Budget and Accounting Act would not be achieved in any substantial degree; that the agencies would continue to submit their individual budget requests to the Congress, without coordination among them in the executive, since this had been the pattern of successful partisan, mutual adjustments in the past. And in 1936 they would have “analyzed” that single-purpose development of the nation’s rivers would never give way to multipurpose development; just as, using bargaining models in the 1960s, some

<sup>41</sup> For further development of this point, see Maass, “Benefit-Cost Analysis,” *op. cit.*, pp. 215–218. John Harsanyi makes a similar distinction in speaking of “the bargaining problem vs. the problem of dominant loyalties.” “Models for the Analysis of Balance of Power in Society,” in Ernest Nagel, Patrick Suppes, and Alfred Tarski (eds.), *Logic, Methodology and Philosophy of Science* (Stanford, Calif.: Stanford university Press, 1962), pp. 442 ff.

political scientists have predicted that the planning-programming-budgeting system (PPBS) will fail.<sup>42</sup> All of these cases are similar in certain respects to that of water planning today, and for the first two, surely, and probably for the third, the analysis would have been wrong.

Professor Aaron Wildavsky's popular book on the budgetary process can be used to illustrate this point further.<sup>43</sup> Wildavsky says, first, that the present process—both preparation of the budget in the executive and its review and approval in Congress—is incremental, fragmented, nonprogrammatic, and the result of bargaining in an environment of reciprocal expectations; and, second, that this is as it should be. In part because there are no objective ways of determining which demands are better than others, we need a process that facilitates representation of different interests and resolution of conflicts among them. The present process achieves these ends because it is so fragmented that it enables all interests to be represented, and so incremental and nonprogrammatic that it provides a basis for compromise, for conflict resolution. Proposals to improve the present process by giving more systematic attention to objectives of programs are, therefore, wrongheaded:

The practice of focusing attention on programs means that policy implications can hardly be avoided. ... Conflict is heightened by the stress on policy differences. ... Logrolling and bargaining are hindered because it is much easier to trade increments conceived in monetary terms than it is to give in on basic policy differences.<sup>44</sup>

Although it contains important insights that had been neglected in scholarly writing on the budgetary process, Wildavsky's description is not fully balanced; the process is not so fragmented and nonprogrammatic as he claims. But the principal criticism to be made

<sup>42</sup> On PPBS see Aaron Wildavsky, "The Political Economy of Efficiency: Cost-Benefit Analysis, Systems Analysis, and Program Budgeting," *Public Administration Review*, XXVI (1966), 292–316.

<sup>43</sup> Aaron Wildavsky, *The Politics of the Budgetary Process* (Boston: Little, Brown, 1964).

<sup>44</sup> *Ibid.*, pp. 137, 138.

here relates to his prescription rather than description, for the former is made without any treatment of the question of the dominant loyalties of the bargaining parties and of how the forms and processes of government influence these loyalties-without, in other words, half of the task of political analysis.

Assuming, then, that relations between multiple-purpose planning and bca can be molded into different forms--that we are not prisoners of the past-1 shall suggest one in which bca is enlarged so that it becomes relevant to a broader range of objectives, while procedures for review and coordination are correspondingly narrowed. I have argued elsewhere that the technique of bca can be expanded to include nonefficiency objectives.<sup>45</sup> The principal problem is not, as so many have claimed, that nonefficiency benefits are intangible, that they cannot be measured. There are metrics or indicators available, and others can be devised, for measuring achievements in terms of redistribution of income, environmental quality, and other objectives.<sup>46</sup> These measures of different objectives cannot simply be added to each other, however. Trade-off or comparison weights are required if programs are to be designed, and benefits and costs evaluated, in terms of multiple objectives. Such weights, when available, tell, for example, how much the nation is willing to sacrifice in national income in order to achieve a certain level of income redistribution to those who could be served by a program, or in order to achieve a certain level of wildland preservation.

The principal problem of expanding bca is, then, to make the policy decisions that are represented by these weights. These decisions can be made in the legislative process--the President proposing trade-off values, based on analyses made for him by the executive agencies, and the Congress reviewing, amending, approving them. Under this procedure the professionals in the executive would sketch out broadly the alternative engineering and economic consequences of using different trade-off weights in designing a program of projects or a single large project. These

<sup>45</sup> Maass, "Benefit-cost Analysis . . .," *op. cit.*

<sup>46</sup> See, for example, U.S. Department of Health, Education and Welfare, *Toward a Social Report* (Washington, D.C.: Government Printing Office, 1969), a report on indicators for measuring social change.

alternative consequences would then be compared and debated in a legislative process. After this process resulted in agreement on objectives, the executive agencies would proceed with project planning.

In water policy, trade-off values have not yet been decided in a legislative process. The recent history of executive-Congressional relations in water policy shows, however, that trade-off values could probably be so decided, if the executive initiated their consideration. Executive initiation, it should be noted, is the normal procedure in legislation. Furthermore, recent case studies of federal programs for interstate highways and for rent supplements provide evidence that the legislative process contains considerable capacity to deal with multiobjective functions.<sup>47</sup>

Once a multiobjective design function was determined, the requirements for further coordination would be well defined by that function. The planning process would then become manageable, if the executive were to dismantle the present elaborate review machinery and reconstruct it in accordance with the dictates of a weighted design function. The planning process would be expedited, in other words, if the new form of benefit-cost analysis were substituted for certain stages of coordination; but if the new bca were simply added on top of present procedures, public investment planning would become even more stultifying than already it is.

The partisans of some purposes have vested interests in present procedures, to be sure. For example, the protection of wildlands is promoted, almost invariably, by no development of resources at all, so that the supporters of this and related conservation purposes like a planning process in which they have something approximating a veto on development. They are loath to forfeit this advantage, even though, under the proposed procedures, their purposes would for the first time be evaluated in the all-important benefit-cost analysis, and they would participate in the legislative process that fixed the weights according to which that analysis is made. Such conservationists' objections to multiobjective plan-

<sup>47</sup> On the highway program, see Major, *op.cit.*, chap. 5, and Maass, "Benefit-Cost Analysis . . .," *op.cit.*, pp. 219-221. On the rent supplement program, see *ibid.*, pp. 221-225, which was prepared with the assistance of Major.



ning, however-preferring a flat veto to a decision process in which the benefits of their purposes can be compared to those of other objectives-are so blatantly know-nothing in character that they are unlikely to stand against a concerted effort to reorganize planning procedures, in which some present institutions and processes may be discarded and others modified and retained for the purpose of debating and reaching agreement on trade-offs among objectives.

Promotion by special-purpose groups of elaborate review procedures as a means for protecting their interests in a program is a form of bureaucratic conduct that we noted earlier. Perhaps this observation should be extended to include the following proposition: Where special interests fare better in an environment of ignorance than in one of enlightenment, they will insist on formal and elaborate procedures for coordination.

Finally, we can ask whether Congressional participation in the setting of design standards would result in a large increase in expenditures on water resource projects, as is feared by many in the executive who are concerned primarily with program expenditure levels, and is desired by others in the executive and Congress who have seen the percentage of the federal budget allocated to water resources decline significantly in recent years.

A decision to design for multiple objectives may or may not result in a larger program of projects. Benefits of different objectives cannot be simply added, nor can their corresponding costs. They must be multiplied by trade-off or comparison weights before they can be combined. The values of these weights determine the size and nature of projects, and it is these values that will be determined in the legislative process, according to our model.

The specific Congressional actions discussed in this article suggest that Congress always wants a bigger program (although one legislative subcommittee during the period of analysis, 1950-1969, proposed that Congress enact standards that would have been more restrictive than Budget Circular A-47).<sup>48</sup> But the evidence is not conclusive on this point; in the absence of a well-prepared execu-

<sup>48</sup> U.S. 82nd Congress, House Committee on Public Works, Subcommittee on the Study of Civil Works, *Committee Print 21*, p.39, and *Committee Print 24*, pp. 52-55. Admittedly this proposal did not gain wide acceptance in either house.

tive initiative, Congress has not had an opportunity to consider trade-off values systematically.

If the trade-off values adopted for multiple objectives do result in the design and authorization of a larger program of projects, this may or may not lead to large increases in appropriations. There is a general relation between the size of authorized programs and the appropriations voted to carry them out, to be sure—larger authorizations result in larger appropriations. But authorizations are frequently not met by appropriations, and in the area of water resources the gap between the two has in recent years grown to be so great that the budget constraint has an independent life of its own. The constraint represents, in other words, one objective of the program, but projects are not designed for it.<sup>49</sup> For fiscal year 1969 the Corps of Engineers has been given approximately \$700 million for construction work, and the appropriations required to complete projects under construction at this time are estimated to be approximately \$5.4 billion. But there are over 450 active authorized projects that are not yet under construction, and a conservative estimate of their cost is \$9.7 billion.<sup>50</sup>

. 49 If the single objective of today's water resource program were indeed to maximize national income, then we should design all projects so that the last increment added has national income benefits equal to its national income costs, and we should appropriate funds to build all projects so designed — there should be no backlog. We do design projects as if there were no budget constraint, but we do not build all projects. The budget constraint is applied after projects have been designed and authorized, at the time that the executive selects those among all projects that are to be included in the budget. But to combine in this way a national income design objective with a long-term budget constraint, which represents a second, although poorly defined, objective, is inefficient. A limited budget is absorbed by a small number of large projects, each designed to the limits of its contribution to national income. More benefits could be realized from the same budget if the large projects were designed smaller — if the last increments that make the least contribution to national income were not added, in which case additional projects, with greater benefits per unit of expenditure than the last increments of the large ones, could be included in the limited budget.

In other words, where there are multiple objectives, projects should be designed with this fact in mind, and this holds whether the objectives, in addition to the budget constraint, are multiple or simply national income.

50 For appropriations required to complete projects under construction, see *Budget Appendix for Fiscal Year 1970*, H. Doc. 91-16, pp. 349, 353. For estimated cost of projects not yet under construction, see *Hearings on Public Works Appropriations, op. cit.*, Part I, p. 46. These data do not include projects that have been planned but not authorized, nor those now being planned. The status of the program of the Bureau of Reclamation is similar.

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The use of multiple objectives is likely to result in increased expenditures only if the program of projects so designed is **considered** by the executive and Congress to be more relevant **to the** nation's needs than is the existing backlog of projects. This might well turn out to be the case.